

**REMARKS**

The Office Action dated March 18, 2005, has been received and reviewed.

Claims 1-26 are currently pending and under consideration in the above-referenced application. Of these, claims 16 and 24 recite allowable subject matter, while claims 1-15, 17-23, 25, and 26 stand rejected.

Reconsideration of the above-referenced application is respectfully requested.

**Rejections Under 35 U.S.C. § 112, Second Paragraph**

Claims 12-14 stand rejected under 35 U.S.C. § 112, second paragraph, for reciting subject matter which is purportedly indefinite.

Claims 12 and 13 have been rejected for reciting “at least the portion.” This typographical error has been corrected by revising claims 12 and 13 to recite “the first portion,” a revision which does not narrow the scope of either claim 12 or 13, but improves the clarity of these claims. Claim 11 has been similarly revised.

Claim 14 has been rejected because “the top portion” apparently lacked antecedent basis. Claim 14 has been amended to more broadly recite “an end.”

It is respectfully submitted that each of claims 12-14 is in condition for allowance under the second paragraph of 35 U.S.C. § 112, second paragraph. Accordingly, withdrawal of the 35 U.S.C. § 112, second paragraph, rejections of claims 12-14 is respectfully requested.

**Rejections Under 35 U.S.C. § 102**

Claims 1-3, 5-9, 11-14, 17, and 18 are rejected under 35 U.S.C. § 102(b) for reciting subject matter which is purportedly anticipated by that described in U.S. Patent 5,844,251 to MacDonald et al. (hereinafter “MacDonald”).

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single reference which qualifies as prior art under 35 U.S.C. § 102. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

MacDonald discloses an emitter tip that includes a bottom portion (post 72) with a sidewall that is oriented substantially perpendicular relative to the substrate from which the emitter tip protrudes. A top portion (tip 76) of the emitter tip tapers to a point. Almost the entire tip is surrounded by a titanium tungsten (TiW) layer 84 of substantially uniform thickness. *See* FIGs. 3(f)-3(i); *see also* col. 6, lines 13-16.

While the TiW layer 84 of MacDonald surrounds the bottom portion 72 of the tip, it has a substantially uniform thickness (of 200 Å; *see* col. 6, lines 13-16) and, thus, does not taper. Moreover, the portion of the TiW layer 84 that overlies the bottom portion 72 of the tip is also oriented perpendicularly relative to the underlying substrate. Further, the portion of the TiW layer 84 that overlies the top portion 76 of the tip is spaced apart from (by a silicon dioxide layer 74) and oriented parallel to the outer surface of the top portion 76 and, therefore, does not extend *toward* an exposed end of the tip—it extends toward a location above the tip. Thus, MacDonald does not expressly or inherently describe that the TiW layer 84 comprises or includes a tapered portion surrounding the bottom portion 72 of the emitter tip disclosed therein, or that the TiW layer 84 extends toward the point at the end of the tip, as would be required to anticipate each and every element of independent claim 1 under 35 U.S.C. 102(b).

Claims 2, 3, 5, and 6 are each allowable, among other reasons, for depending directly from claim 1, which is allowable.

Independent claim 7 is also allowable under 35 U.S.C. § 102(b) since MacDonald does not expressly or inherently describe that the TiW layer 84 of the tip disclosed therein is a tapered portion that includes an inclined surface that extends toward an exposed end of the tip, or that the TiW layer 84 is a tapered portion of a tip that surrounds a substantially vertical portion (*i.e.*, bottom portion 72) of the tip.

Claims 8 and 9 are both allowable, among other reasons, for depending directly from claim 7, which is allowable.

Independent claim 11 recites a field emission array that includes at least one substantially point tip and at least one surrounding element that tapers toward an exposed end of the at least

one substantially pointed tip. Again, MacDonald does not expressly or inherently describe that the TiW layer 84 of the tip disclosed therein extends toward the pointed end of the top portion 76 of the tip; rather, the TiW layer 84 extends toward a location above the pointed end of the top portion 76. As such, independent claim 11 is drawn to subject matter that, under 35 U.S.C. § 102(b), is allowable over the subject matter described in MacDonald.

Each of claims 12-14, 17, and 18 is allowable, among other reasons, for depending directly or indirectly from claim 11, which is allowable.

Withdrawal of the 35 U.S.C. § 102(b) rejections of claims 1-3, 5-9, 11-14, 17, and 18 is respectfully solicited.

#### **Rejections Under 35 U.S.C. § 103(a)**

Claims 4, 10, 15, 19-23, 25, and 26 stand rejected under 35 U.S.C. § 103(a).

The standard for establishing and maintaining a rejection under 35 U.S.C. § 103(a) is set forth in M.P.E.P. § 706.02(j), which provides:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

#### **MacDonald in View of Jones**

Claims 19-22, 25, and 26 stand rejected under 35 U.S.C. § 103(a) for reciting subject matter which is assertedly unpatentable over the subject matter taught in MacDonald, in view of teachings from U.S. Patent 5,647,785 to Jones et al. (hereinafter "Jones").

It is respectfully submitted that a *prima facie* case of obviousness has not been established against any of claims 19-22, 25, or 26. This is because neither MacDonald nor Jones teaches or suggests each and every element of any of claims 19-22, 25, or 26.

In particular, neither MacDonald nor Jones, taken singly or together, teaches or suggests “at least one surrounding element that tapers toward an exposed end of . . . at least one substantially pointed tip . . .,” as is required by independent claim 19. Instead, the teachings of MacDonald are limited to a TiW layer 84 that is spaced apart from (by a silicon dioxide layer 74) and oriented parallel to the surface of the point at the end of the top portion of the tip disclosed therein and, thus, points to a location above the point, whereas Jones he dielectric material 19 that surrounds the tips of Jones tapers away from the point of the tips 12 disclosed therein. Therefore, under 35 U.S.C. § 103(a), the subject matter recited in independent claim 19 is allowable over the subject matter taught in MacDonald and Jones.

Claims 20-22, 25, and 26 are each allowable, among other reasons, for depending directly from claim 19, which is allowable.

#### MacDonald in View of Yeh

Claims 4, 10, and 15 have been rejected under 35 U.S.C. § 103(a) for reciting subject matter which is allegedly unpatentable over teachings from MacDonald, in view of the teachings of U.S. Patent 5,897,371 to Yeh et al. (hereinafter “Yeh”).

Claims 4, 10, and 15 are each allowable, among other reasons, for depending indirectly from claims 1, 7, and 11, respectively, which are allowable.

#### MacDonald in View of Jones and Yeh

Claim 23 is rejected under 35 U.S.C. § 103(a) for reciting subject matter that is purportedly unpatentable over the subject matter taught in MacDonald, in view of teachings from Jones and, further, in view of the teachings of Yeh.

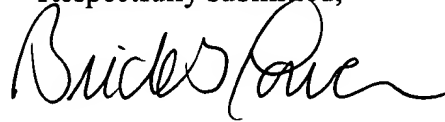
Claim 23 is allowable, among other reasons, for depending indirectly from claim 19, which is allowable.

It is respectfully requested that the 35 U.S.C. § 103(a) rejections of claims 4, 10, 15, 19-23, 25, and 26 be withdrawn.

### CONCLUSION

It is respectfully submitted that each of claims 1-26 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,



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